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Examination	Not requested
Title of Invention	Device for fixing drain hose for dishwasher



Abstract

The invention relates to the drain hose fixing apparatus of the dish washer. According to the present invention, the apparatus in order that it drains the water, the backplane (306) of the base (300), the holder (340) which is inserted into the guide cavity (302) in the state inserting the aliquot of the drain pipe into inside, and, and the gall rim fragment (346) that is plural number formed having the regular interval in the inner side of the holder (340), and is inserted in the spiral groove of the drain pipe are included. As to the apparatus in order that it drains the water, the dish washing is completed, for fixing the drain pipe in which the spiral groove and spiral projection are formed in the outer side surface. As to the backplane (306) of the base (300), the guide cavity (302) guiding the drain pipe in the dish washer outside is formed. As to the holder (340) which is inserted into the guide cavity (302) in the state, a portion of the longitudinal direction is opened. And the gall rim fragment (346) is inserted in the spiral groove of the drain pipe. The drain pipe is inserted into holder and it characterizes to be fixed to the inside outside direction.



Representative Drawing(s)

Fig. 5



Keyword(s)

The dish washer, the drain pipe, and the drain pipe fixing.



Description

■ Brief Explanation of the Drawing(s)

Figure 1 is a perspective view of the general dish washer.

Figure 2 is a perspective view of the conventional drain pipe part.

Figure 3 is a front view of the conventional drain pipe part.

Figure 4 is a disassembled perspective view of the dish washer of the invention.

Figure 5 is a main part perspective view of the drain pipe part of the invention.

Figure 6 is an exemplified cross section of the drain pipe and holder of the invention.

The description * of the symbol about the main part of * drawing.

116 . inner case 300 . base.

302 . guide cavity 304 . combining aperture.

The rear wall 324 . drain pipe of 306 . base.

324a . spiral projection 324b . spiral groove.

340 . holder 342 . body.

342a, 342b . jamming protrusion 344 . flange part.

346 . gall rim fragment.

■ Details of the Invention

■ Purpose of the Invention

■ The Technical Field to which the Invention belongs and the Prior Art in that Field

The invention relates to the dish washer. And more specifically, it is about the drain hose fixing apparatus which is comprised so that the drain pipe draining the water used in the dish washer inside come to the outer side with the external force.

Firstly, the configuration of the dish washer general while being based on fig. 1 is reviewed below: . As shown in the figure, it is comprised of the door (20) for opening and closing the opened front side of the main body (10) including the dish washer, is the space for the washing of the tableware in inside, and main body.

And the inside of the main body (10) the inner casing is formed owing to the tub (16). The upper rack assembly (12a) and the lower rack assembly (12b) for putting on the tableware for to washing inside the tub (16) are attachably and detachably installed. And the upper spray arm (14a), for showing the washing water and bottom spraying arm (14b) are installed at the tableware put on the rack assembly (12) at the lower part of each rack assembly (12). Therefore, while the supplied washing water is emitted from the water pipe through the spray arm (14), the washing of the tableware is progressed.

As to the upper spray arm (14a), a plurality of jet holes for being installed at the lower part of the upper rack assembly (12a) and spraying the washing water is formed. It sprays the supplied washing water towards the upper rack assembly (12a) to the top. Or the upper spray arm (14a) is that the jet hole is formed in lower-part the washing water is sprayed towards the lower rack assembly (12b) to the lower part. And the bottom spraying arm (14a) is installed at the bottom side of the lower rack assembly (12b). It sprays the washing water towards the top of the lower rack assembly (12b).

In this way, by using the washing water, the washing water has to be drained in after when the dish washing is completed to the outside of the dish washer. This drainage is performed by the operation of the drainage pump installed inside the dish washer through the drain pipe.

As shown in Figure 2, it is installed in the state passing through the guide cavity (22a) formed in the backcover (22) of the drain pipe (20), for pumping out the washing water after the washing is finished is the dish washer. In order to pump out the drained water from the predetermined location the state is comprised. The inner ending part of the drain pipe (20) is connected to the thump assembly (figures are omitted) and it guides the water drained to the operation of the drainage pump in outside. And in order that the outer end of the drain pipe (20) throws away the water for to pumping out, it is connected to the drainage part of the kitchen.

And the drain pipe (20) is installed in order to pass through the guide cavity (22a) through the holder (24). The state inserted inside the hose insertion part (24a) of the semi-circular section becomes the drain pipe (20). The inserted main body (24b) taking shape the outer tube of the hose insertion part (24a) is inserted into the guide cavity (24b) in this state. And if the inserted main body (24b) is inserted into the guide cavity (24b), the flange part (24c) of the holder (24) is maintained by the state adhering closely to the inner side of the backcover (22).

As to the conventional holder (24), while it supports so that the drain pipe (20) be put through inside, it can know to be attachably and detachably mounted on the inner side of the guide cavity (22). Therefore, as to the mutual connecting relationship of the holder (24) and drain pipe (20), the drain pipe (20) just passes through the inside of the hose insertion part (24a) of the holder (24), it is nothing but.

As shown in Figure 3, it can know between the drain pipe (20) and holder (24) that any connection relation or the fixed structure is not prepared. Therefore, the drain pipe (20) is arbitrarily gone after the mount of the dish washer to the outer side if user pulls the outer end of the drain pipe (20). In this way, if the drain pipe (20) arbitrarily comes off in outside, it has the concern in which the connection part with the thump assembly of inside comes off or which can be damaged, it is of course. Therefore, a portion of the drain pipe (20) is damaged, or if the part connected to the dish washer inside is ruined, it is impossible to the drainage of the water in the dish washer inside. The part has the concern leading to the water leakage.

◆ The Technical Challenges of the Invention

In the dish washer, for the water leakage cutoff of the water, the critical matter quite in the different branch portion. If the drain pipe arbitrarily breaks away from with the external force, it can become the serious problem in the side of this water leakage cutoff.

Therefore, an object of the present invention is to provide the drain hose fixing apparatus which is ultimately the water leakage of the dish washer inside comprised by steadily fixing the drain pipe, in order to completely prevent concern.

◆ Structure & Operation of the Invention

In order that the water in which the dish washing for achieving purpose is completed is drained, the water is inserted into the guide cavity as the apparatus for fixing the drain pipe in which the spiral groove and spiral

projection are formed in the outer side surface in the state inserting the aliquot of one side: drain pipe of the dish washer in which the guide cavity guiding the drain pipe in the dish washer outside is formed into inside. It is plural number formed having the regular interval in the inner side of holder and the holder in which a portion of the longitudinal direction is opened. The gall rim fragment inserted in the spiral groove of the drain pipe is included and the gall rim fragment is inserted in the spiral groove of the drain pipe. The drain pipe is inserted into holder and it characterizes to be fixed to the inside outside direction.

And fixing means for fixing holder on one side of the dish washer can be more included.

And it is comprised of flange part formed in the inner side of the body, in which holder is inserted in the guide cavity, and the drain pipe is inserted into inside. And body.

According to the embodiment about the fixing means, it is formed in the outer end of the body and the body is comprised of a plurality of jamming protrusions connected in the exterior of one side, and the flange part adhering closely to the inner side of one side.

And in the bottom part of the flange part, the fixing means more includes the combining aperture shaped in the inner side of one side so that it combine with the fixed lug, protruded to the outer side and fixed lug and the fixing means can be comprised.

And it is preferable that the guide cavity is the backplane of the base of the plastic material installed at the formed thing, one side of the dish washer is the lower part of tub.

Next, while being based on the embodiment shown in the drawing, it decides to look about the invention.

Firstly, configuration and draw-off point of the dish washer whole it is based on fig. 4 are reviewed below:. As shown in the figure, it is composed of the side (112) of the pair installed at the external casing of the dish washer is both side bottom of the upper side (110), and upper side (110).

The tub (116) is installed inside this external casing. The tub (116) is the part which materially performs the dish washing in inside. The upper rack assembly (210), for putting on the tableware for to washing and lower rack assembly (212) are attachably and detachably installed in top and bottom inside the tub (116).

And in the lower part of the tub (116), the base (300) is installed. The thump assembly (310) in which the washing pump (312), the drainage pump (314) and heater assembly (316) are installed on the top of the base (300) is mounted. Moreover, the soft water apparatus (330) for making the washing water into soft water at the upper part of the base (300) is installed.

The holder (226) is installed on the top of the thump assembly (310). While distributing the washing water supplied with the washing pump (312) to the washing water guide (220) or the bottom spraying arm (224), the holder (226) supplies.

And the inside backplane of the tub (116), the washing water guide (220) for providing with the washing water is installed in the longitudinal direction. The water supplied through the washing water guide (220) is supplied to the upper spray arm (222) in which a plurality of jet holes is formed. The upper spray arm (222) is installed by the holder (223) in the lower part of the upper rack assembly (210). The supplied water is sprayed towards the upper rack assembly (210).

Next is the flow of the whole water of the dish washer is reviewed below:. The water supplied through the water pipe is guided through the inlet port (326) inside the air guide (320). The water flowing according to the path of the air guide (320) inside is supplied via the soft water apparatus (330) to the inside of the thump assembly (310). And if the washing pump (312) operates, it is distributed to the washing water guide (220) or the bottom spraying arm (224) and the washing water is provided in the inside of the holder (226) to the fixed pressure.

While being emitted through the upper spray arm (222), it is emitted to the water supplied to the washing water guide (220) towards the upper rack assembly (210). The water supplied to the bottom spraying arm (224) is emitted towards the lower rack assembly (212).

It is filtered with filtering device installed at the foreign material which this washing water repetitively circulates while maintaining the fixed water level in the thump assembly (310), and is included in the water among the circulation-process. Is the thump assembly. If the washing is finished while repeating this process, the water of the dish washer inside has to be drained.

In the drainage time, the drainage pump (314) adhered to one side of the thump assembly (310) operates. It flows to the inside hose (322) connecting the thump assembly (310) and air guide (320) with the operation. The water of the inside hose (322) inside is guided to the drain pipe (324) through the inside of the air guide (320).

And it is guided to the outside of the dish washer through the guide cavity (302) formed in the backplane of the drain pipe (324), is the base (300). And in the state where the drain pipe (324) is supported by the holder (340), the guide cavity (302) is passed through.

The holder (340) next is based on fig. 5 is reviewed below: It is comprised of the body (342) including the insertion space, and the flange part (344) extended to the outer side in one side of the body. As to the body (342), the holder (340) can be formed on the half-cylinder in which the lower part is opened, and the drain pipe (324) can be inserted into inside.

It is the part inserted into the inner side of the guide cavity (302) formed in the rear wall of the base (300) in the state, where the body (342) the drain pipe (324) is inserted in inside. And as to the flange part (344), in the state where the body (342) is inserted into the guide cavity (302), by adhering closely to the inner side of the base (300) rear wall it is the part which the holder (340) supports in order not to move to the outer side.

And the gall rim fragment (346) of the plurality of having the length which the inner side of the body (342) is fixed is formed. The gall rim fragment (346) is to fix the drain pipe (324) inserted into inside. In order that the drain pipe (324) gives the flexibility through any direction, it is comprised of the coil in which the continued spiral projection (324a) is formed in the outer side surface. Therefore, the drain pipe (324) the spiral groove (324b) is formed between the spiral projection (324a).

A plurality of gall rim fragments (346) has the interval which can be inserted between the spiral groove (324b) of the drain pipe (324). And if the drain pipe (324) is inserted through the opened lower-part in the holder (340), the gall rim fragment (346) is inserted in the spiral groove (324b) of the drain pipe (324). In this way, movement to materially, the drain pipe (324) is backward and forward inside the holder (340) the gall rim fragment (346) is inserted in the spiral groove (324b) are prevented.

The combining relation of the guide cavity (302) and holder (340) next is based on figs. 5 and 7 are reviewed below: The part is formed in the rear wall (306), and penetrates the drain pipe (324) to the outer side of the guide cavity (302), is the base (300) are same as those of the above-described bar. And in one side of the guide cavity (302), that is, the lower part in the embodiment shown, a pair of the combining aperture (304) are formed.

And in the outer end of the body (342) of the holder (340), a plurality of jamming protrusions (342a,342b) is shaped. And as to the bottom part either side of the flange part (344) of the holder (340), the fixed lug (344a) is shaped.

Therefore, if the holder (340) is inserted in the guide cavity (302) of the base (300) rear wall (306), after the body (342) is inserted through the guide cavity (302) to the outer side, jamming protrusions (342a,342b) hang on the outer side surface of the rear wall. In this way, if jamming protrusions (342a,342b) hang on the outer side

surface of the rear wall (306), the state that it does not pull toward the inner side becomes materially the holder (340).

And before jamming protrusions (342a,342b) hang on the outer side surface of the rear wall (306). The fixed lug (344a) is inserted into the combining aperture (304) of the rear wall (306) in the process where the holder (340) is inserted into the guide cavity (302).

In the state where the fixed lug (344a) is inserted into the combining aperture (304), it any more is unable to go to the outer side and the holder (340) is fixed. It is the state that the holder (340) does not pull toward the inner side in the state where jamming protrusions (324a,324b) simultaneously hang on the outer side surface of the rear wall (306). Therefore, the holder (340) is combined in the guide cavity (302). If it becomes the state that as described above, is combined, it is materially combined with the holder (340) itself in the rear wall (306) and it becomes the state that is unable to move to the inner side or the outer side of the rear wall (306).

And in such state, it hangs in the inside of the holder (340) on the gall rim fragment (346) and the drain pipe (324) is maintained by the state that is unable to move to the inner side or the outer side, it is the same like the above-described bar.

In this way, according to the configuration of the present invention, it is steadily supported in the state where the holder (340) is combined in the guide cavity (302). Simultaneously, it can know to maintain the supported state without the number which the drain pipe (324) moves in the inside of the holder (340) to inside and outside. Therefore, if the invention is applied, the drain pipe (324) can be materially completely fixed to the rear wall (306) of the base (300). It can know to enough prevent from coming off in outside with the arbitrary external force.

And in the above preferred embodiment, the guide cavity (302) illustrates the invention in the rear wall (306) of the base through the shaped embodiment. But the forming location of the guide cavity for guiding the drain pipe to the outside of the dish washer cannot be restricted by the base as described above. It is of course to be possible to be formed in one side of the dish washer.

As shown in the above, according to the present invention, a plurality of gall rim fragments is molded in the inner side of the holder (340). It can know that it is done by the basic technical mapping to comprise so that the drain pipe can,nots move and it has. It is obvious in the category of the basic technical mapping of this kind of invention that the category has to a person skilled in the art of the relevant industry and the invention should be interpreted based on the range of the patent claim attached it is possible for the other many deformation.

■ Effects of the Invention

The drain pipe pumping out the water in which according to the present invention, the washing is finished like the or more can know that the is inserted inside the holder (340) and does not move to the front back and is fixed state is comprised in order to maintain the state that. Moreover, it has the holder (340) itself with the structure of being fixed to the backplane (306) of the base (300). It is according to apply structure by this kind of invention. It can know that it does not move from the state where the drain pipe is fixed with the holder (340) to inside and outside with the arbitrary external force and the state is supported. Furthermore, the holder (340) is supported in the rear wall (306) of the base and it does not break away from. The drain pipe is supported in order not to move with the external force. Therefore, the drain pipe and connection with outskirts part are not damaged by the external force. It expects the advantage of completely preventing the water leakage of the draw-off point etc.



Scope of Claims

Claim 1 :

The drain hose fixing apparatus of the dish washer wherein the water in which the dish washing is completed is drained; the water is inserted into the guide cavity (302) as the apparatus for fixing the drain pipe in which the spiral groove and spiral projection are formed in the outer side surface in the state inserting the aliquot of one side: drain pipe of the dish washer in which the guide cavity (302) guiding the drain pipe in the dish washer outside is formed into inside; it is plural number formed having the regular interval in the inner side of the holder (340) and the holder (340): in which a portion of the longitudinal direction is opened; the gall rim fragment (346) inserted in the spiral groove of the drain pipe is included and the gall rim fragment is inserted in the spiral groove of the drain pipe; and the drain pipe is inserted into holder and the regular interval can be fixed to the inside outside direction.

Claim 2 :

The drain hose fixing apparatus of the dish washer of claim 1, wherein the fixing means for fixing the holder (340) on one side of the dish washer is more included and the fixing means is comprised.

Claim 3 :

The drain hose fixing apparatus of the dish washer consisting of a plurality of jamming protrusions (342a,342b), and the flange part (340) adhering closely to the inner side of one side of claim 2, wherein the fixing means it is comprised of the flange part (340) formed in the inner side of the body (342), in which holder is inserted in the guide cavity; and the drain pipe is inserted into inside. And body is formed in the outer end of the body and the body is connected in the exterior of one side.

Claim 4 :

The drain hose fixing apparatus of the fixed lug (344a), and the dish washer which more includes the combining aperture (304) shaped in the inner side of one side so that it combine with the fixed lug of claim 3, wherein the fixing means is protruded in the bottom part of the flange part to the outer side.

Claim 5 :

The drain hose fixing apparatus of the dish washer which is the backplane (306) of the base of the plastic material of any one of claims 1 through 4, wherein one side of the dish washer is installed at the lower part of tub.



Drawings

Fig. 1

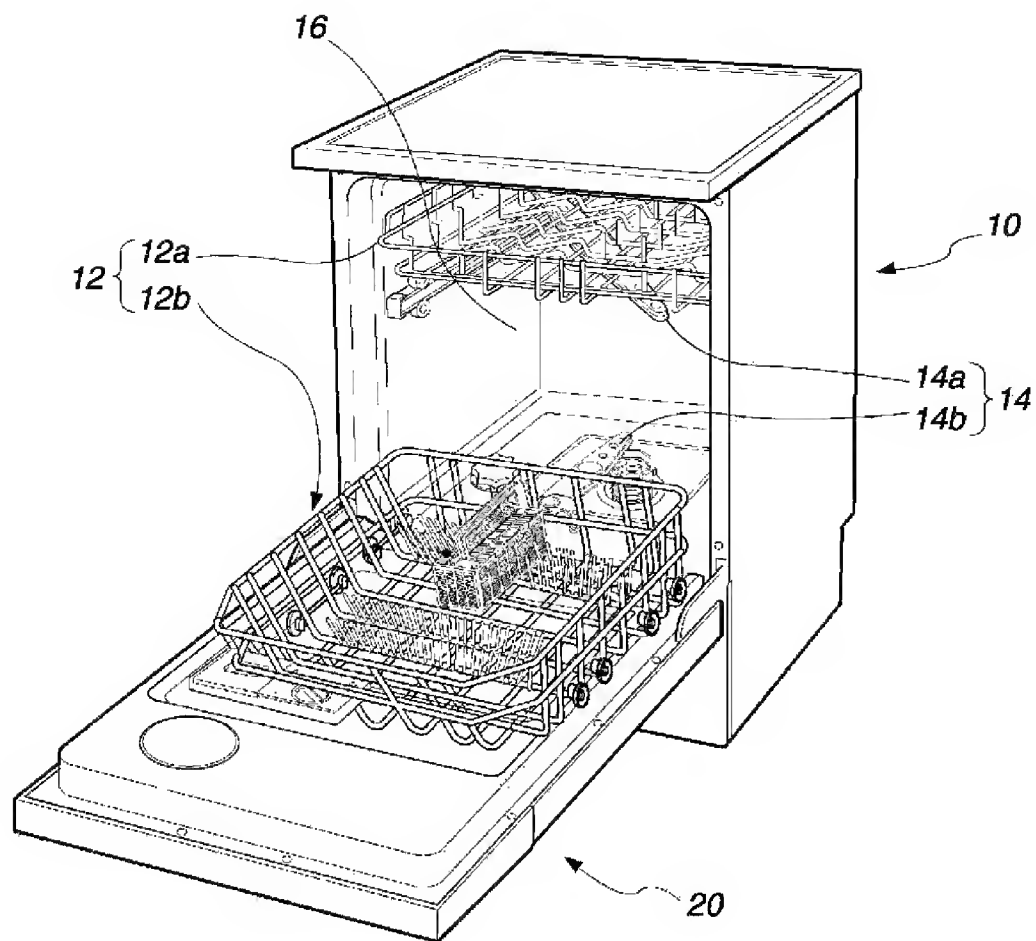


Fig. 2

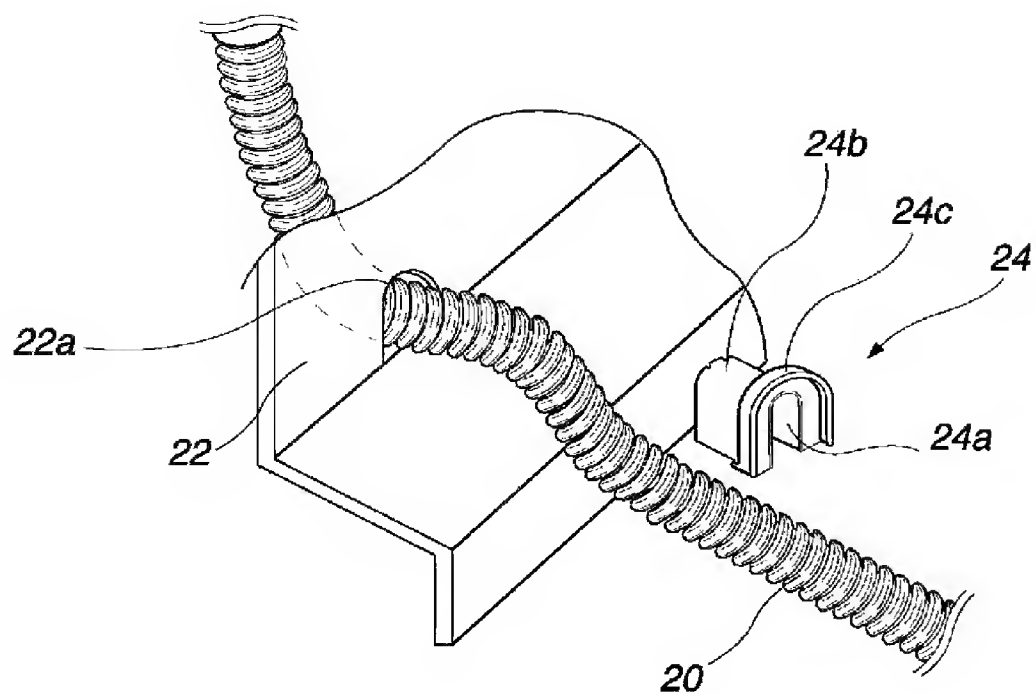


Fig. 3

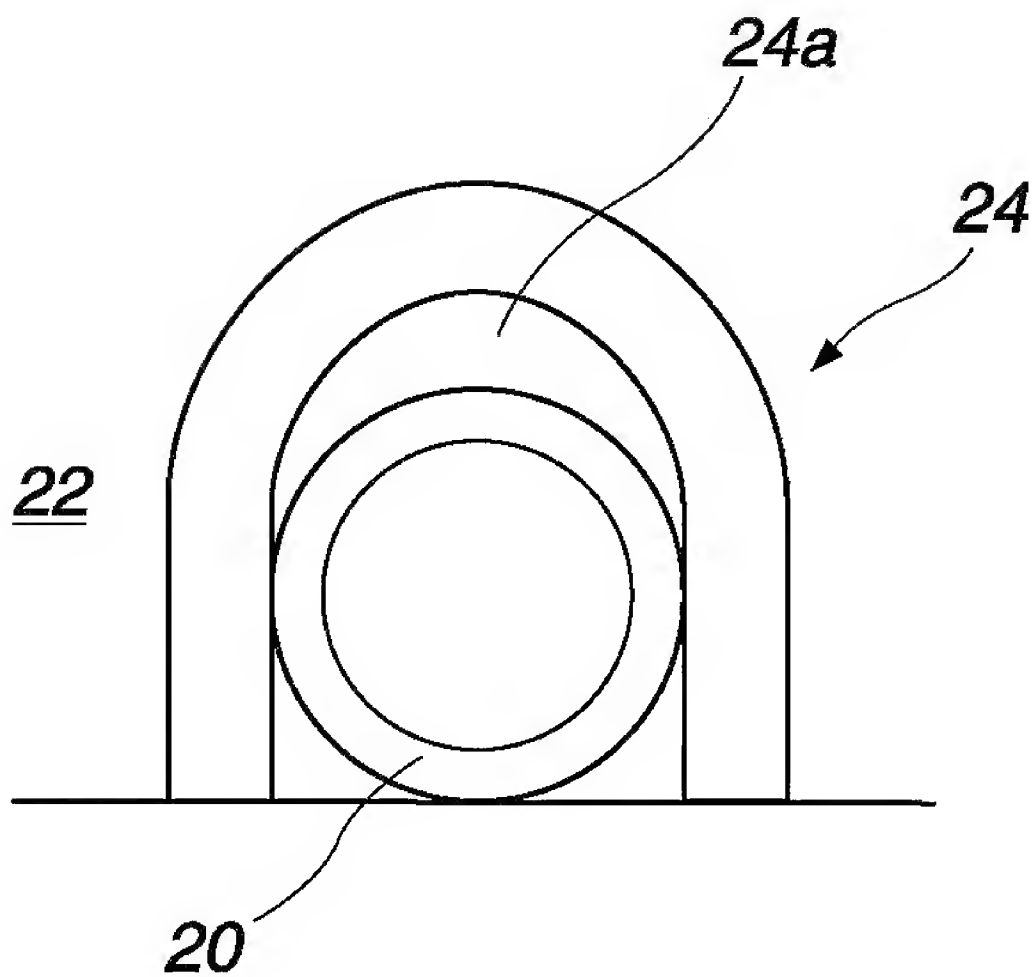


Fig. 4

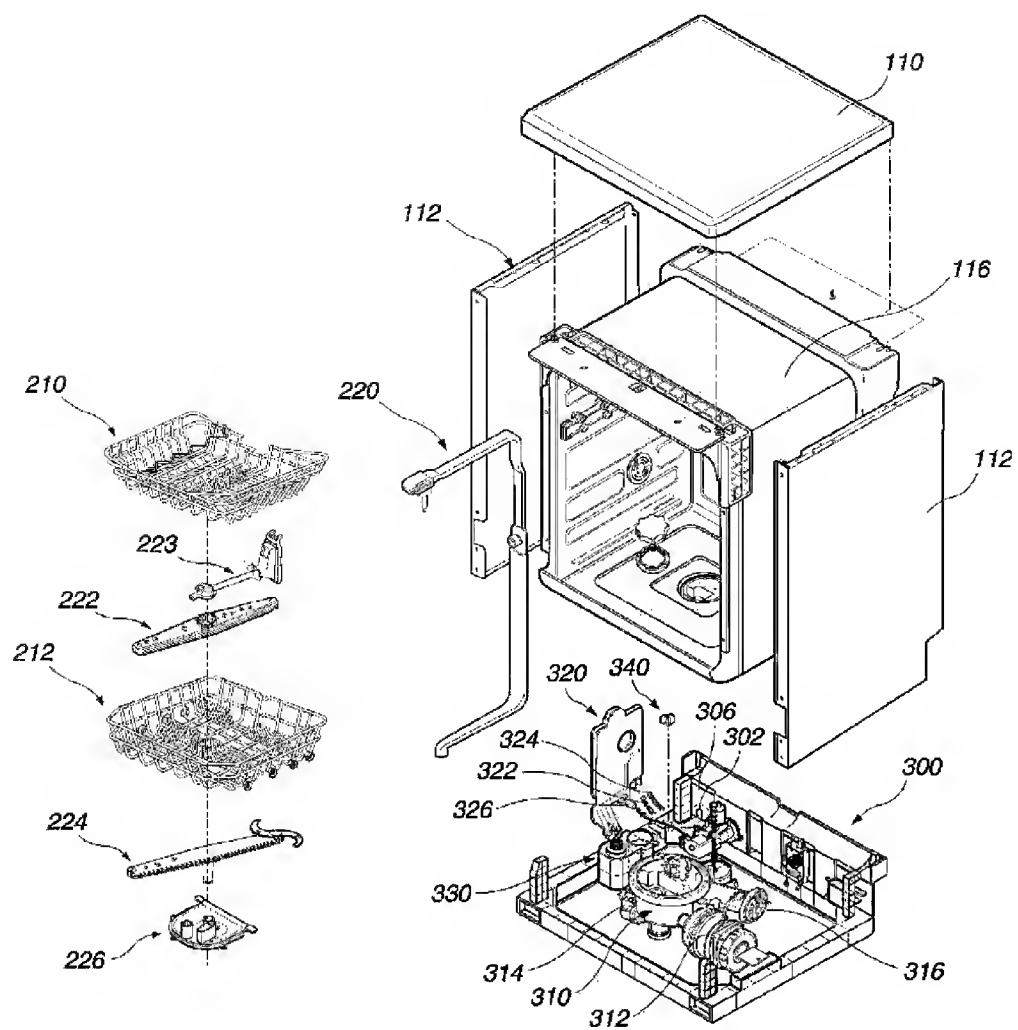


Fig. 5

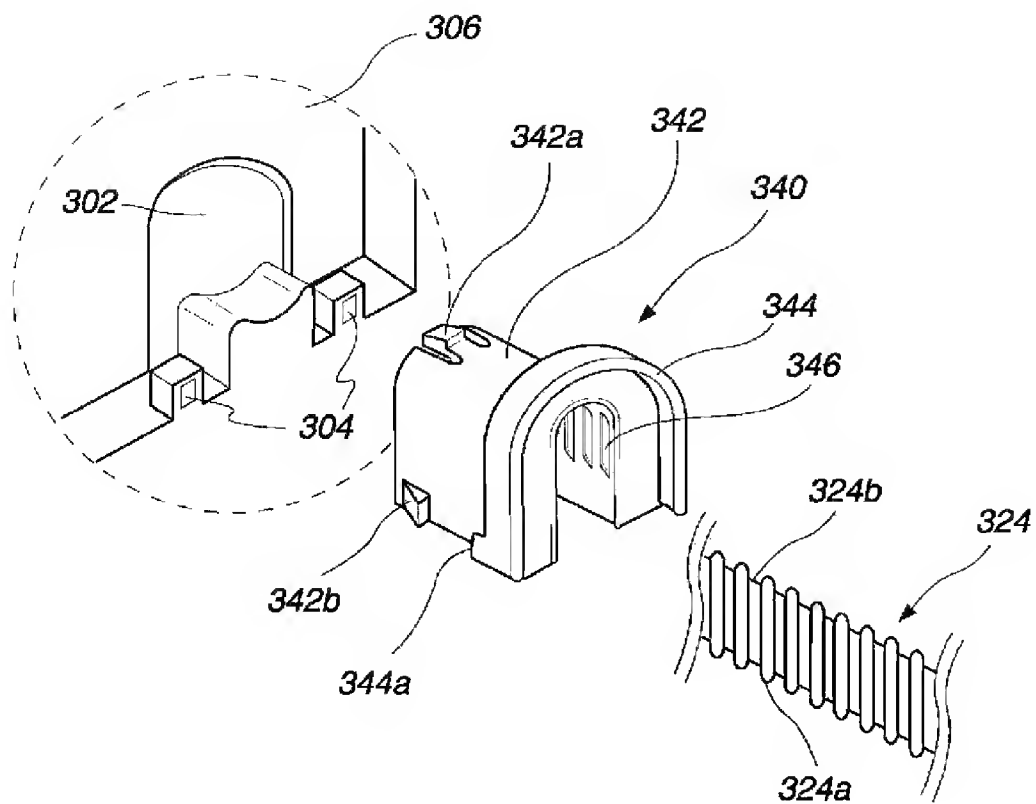


Fig. 6

